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Division File

Perry Hann PCH

LPC 11780201 - Macoupin County - Brighton/Brighton Landfill #1
LPC 11780203 - Macoupin County - Brighton/Brighton Landfill #2
Preliminary assessment of subsurface data submitted by Mike Rapps and John Mathes, and Associates.

This memo is an addendum to a memo dated July 19, 1982 to Jim Reid. (Note: The memo was first written as a draft on June 29, 1982, at Jim Reid's request.) The information herein was obtained primarily from the following: Inspection on June 30 of auger samples obtained by J. Mathes; Drilling of borings by Agency on July 1, under the supervision of Tim Goetis and myself; Drilling of borings by Agency on July 6, supervised by Tim Goetis; and subsurface data submitted by site engineer dated July 3, 1979 and February 17, 1982.

The comparison of data submitted by the site engineer with the information obtained by the Agency seems to strongly indicate certain "anomalies" in the geologic data, approaching misrepresentation of information.

A shallow silty sand unit was observed in all of the borings conducted by the Agency drill rig. Drill logs from the July 1979 report also confirm the presence of this shallow sand unit occurring between approximately 610-608 elevation.

Inspection (at their office) of the samples collected recently by J. Mathes in borings B-18 thru B-20 (which were new locations for borings at the site) revealed the presence of this shallow sand unit in each of the borings; yet, the unit was not described in any of the borings logs. The occurrence of the unit was between the same 610-608 elevation range. Other sandy zones were also observed in the auger samples of B-18 thru B-20 during the June 30 inspection. Two zones, which were not described in the boring log description of the February 17, 1982 subsurface study, were observed to occur at or near elevations 585 and 575.

No permeability data was submitted on any of the sandy zones observed. (February 1982 Report). It was discovered that permeabilities were obtained from fine-grained (less permeable) materials, which occurred above or below these coarser grained zones. The text of the report gives no indication as to the basis for these select permeability studies, altnough, it is not difficult to conceive as to the reasons why select studies were conducted.

The borings in the most recent report are labeled as either "A" series or "B" series (e.g. 12A, 5B) because previous borings were conducted at approximately the same location. In these new borings, samples were not collected in the shallow depths within the sampling intervals of the previous boring. The sampling intervals for the "A and B" series are indicated in the respective column of each log under "Sample Number". (e.g. for Boring 5-B the first sample interval, 1B, was collected at a depth of 36.5 ft.) Descriptions of the shallow unsampled zones are given in the new logs, demonstrating an "interpretative change" not addressed any where in the text of the subsurface report. For example in the original boring logs of B-5 and B-12 sandy units were noted in the description of material at elevations 623.1 and 622.2, respectively. In the log of B-5B and b-12A no sandy zones were noted at the respective elevations (depths). The first sampling interval for b-12A was collected from the same depth, 36.5 ft., as was B-5B. (approximately the 600 elevation)

The original B-7 log, too, indicates a brown silty fine to medium grain sand with clay, and traces of gravel were encountered at the 610 elevation, approximately two feet thick. B-7A does not indicate this zone; its first sample interval indicated by sample number, 1A, was collected from the 591 elevation.

These findings indicate in the boring logs, where description information from old logs should have been transposed directly to the new logs, as was done with other data (i.e. blow counts, moist content), certain other information, specifically, descriptions of coarser grained units, was premeditatedly excluded.

The shallow sand unit, which was found in the Agency borings, (and also included in some of logs in the July 9, 1979 report written by Mathes) occurs continuously throughout the boundaries of the site. Agency borings and Mathes borings both indicate the unit to be water bearing, though, there has been some disagreement between parties as to the significance of the volume.

The water yield capability of the shallow sandy zones encountered on site has not been quantified; no pump tests were included in any of the subsurface reports. The text of the Mathes subsurface study reported "there are only 2 wells located within a two mile radius of the site and these are only shallow wells which obtain small quantities of water from sand seams in the glacial drift". Information recently obtained from the Illinois Water Survey indicates there are approximately 28 wells within this radius, and 7 wells within ½ mile; all of these wells seem to be screened in the shallow silty sand occuring at the loess-till contact. The shallow sand zone encountered on site occurs, as well, at or near the loess-till interface.

The continuity of this zone or unit is supported by the phenomenon of constant leaching observed along the slope adjacent to the creek. Leachate seeps outcropping at elevations considerably above what would be expected under ordinary circumstances have been observed continuously for more than 8 years. Remedial actions taken by the site have done little to alleviate the problem. The information obtained by the Agency drilling on the continuity of the sand and its water bearing capabilities seems to indicate it to be the likely source for recharge in the production of the leachate.

In summary, the assessment of the February 1982 subsurface study conducted by Mathes and Associates, Inc. at the Brighton Landfill must be described as incomplete, erroneous, and misrepresentative of the actual hydrogeologic conditions present.

PCM:jlr

cc: Bill Child
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Southern Region ✓